

**Just In Time Quick Check**  
**Standard of Learning (SOL) 8.16b**

**Strand: Patterns, Functions, and Algebra**

**Standard of Learning (SOL) 8.16b**

*The student will identify the slope and y-intercept of a linear function given a table of values, a graph, or an equation in  $y = mx + b$  form.*

**Grade Level Skills:**

- Given a table of values for a linear function, identify the slope and y-intercept. The table will include the coordinate of the y-intercept.
- Given a linear function in the form  $y = mx + b$ , identify the slope and y-intercept.
- Given the graph of a linear function, identify the slope and y-intercept. The value of the y-intercept will be limited to integers. The coordinates of the ordered pairs shown in the graph will be limited to integers.

**Just in Time Quick Check**

**Just in Time Quick Check Teacher Notes**

**Supporting Resources:**

- VDOE Mathematics Instructional Plans (MIPS)
  - [8.16ab - Slope and y-intercept](#) (Word) / [PDF Version](#)
- VDOE Algebra Readiness Formative Assessments
  - [SOL 8.16b](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Remediation Plans
  - [Identifying Slope and Y-intercept](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: Grade 8 ([Word](#)) | ([PDF](#))
  - Slope – Definition
  - Slope
  - Linear Function
  - Identifying Slope and y-Intercept
- Desmos Activity
  - [Put the Point on the Line](#)
  - [Match My Picture](#)
  - [Match My Line](#)
  - [Land the Plane](#)
  - [Investigating T-Shirt Offers](#)
  - [Linear Slalom](#)

**Supporting and Prerequisite SOL:** [8.16a](#), [7.10a](#), [7.10c](#), [6.1](#), [6.8b](#), [6.12a](#), [6.12b](#)

### SOL 8.16b - Just in Time Quick Check

1. Which is the equation for a line with a slope of -3 and a y-intercept of 4?

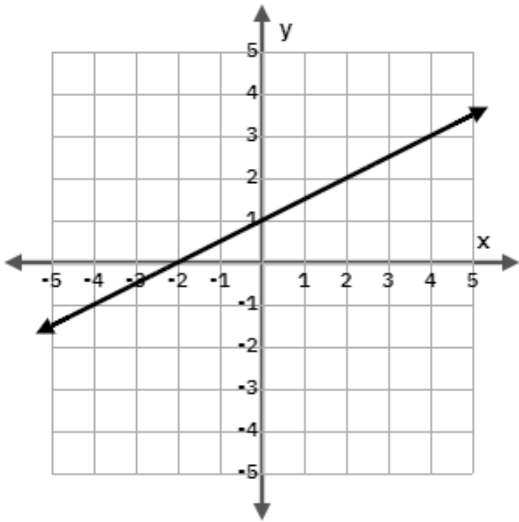
$$y = -4x + 3$$

$$y = -\frac{3}{4}x + 4$$

$$y = -3x + 4$$

$$y = -\frac{4}{3}x - 3$$

2. Identify the slope and y-intercept for the linear function represented in the graph.



3. What are the slope and y-intercept for the linear function represented in the table?

$x$	$y$
3	0
0	-2
-3	-4

Describe how you determined each.

## SOL 8.16b - Just in Time Quick Check Teacher Notes

### Common Errors/Misconceptions and their Possible Indications

1. Which is the equation for a line with a slope of -3 and a y-intercept of 4?

$$y = -4x + 3$$

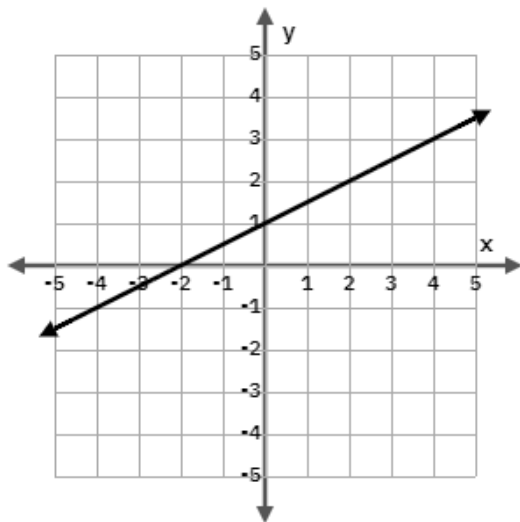
$$y = -\frac{3}{4}x + 4$$

$$y = -3x + 4$$

$$y = -\frac{4}{3}x - 3$$

*A common misconception is for students to reverse the y-intercept and the slope and incorrectly represent the equation as  $y = 4x - 3$ . These students would benefit from revisiting the Linear Function card in the VDOE Word Wall Cards: Grade 8 to review that the function of a linear equation is written in the form  $y = mx + b$  where  $m$  represents the slope and  $b$  represents the y-intercept.*

2. Identify the slope and y-intercept for the linear function represented in the graph.



*A common error a student may make is writing the slope as 2. This may indicate that the student believes the slope to be  $\frac{\text{change in } x}{\text{change in } y}$  instead of  $\frac{\text{change in } y}{\text{change in } x}$ . This student may benefit from experiences to build conceptual understanding of slope, perhaps through the use of slope triangles. A teacher may want to refer to the Algebra Readiness Remediation Plan - [Slope – Rate of Change in a Proportional Relationship](#) which provides opportunities to develop the concept of slope in a proportional relationship connecting graphs, scenarios, and ratio tables to illustrate the ratio  $\frac{\text{change in } y}{\text{change in } x}$ . The student may also benefit from opportunities to match the slope and y-intercept to the graph, refer to the VDOE MIP 8.16ab - Slope and y-intercept for a matching activity.*

3. What are the slope and y-intercept for the linear function represented in the table?

$x$	$y$
3	0
0	-2
-3	-4

Describe how you determined each.

*A common error is for students to identify the y-intercept as 3 (using the coordinate (3,0) from the table) instead of the y-intercept of -2. This indicates that the student is looking for a zero value in the table and does not have a strong understanding of the concept of a y-intercept. It may also indicate that the student believes since it is called a y-intercept, the y-value should be zero. These students could benefit from graphing the ordered pairs in the table to see which point lies on the y-axis. These students would also benefit from writing the ordered pairs for several points on the y-axis and then looking for a pattern to notice that all points that lie on the y-axis have an ordered pair of the form (0, b).*

*Another common error is for students to write the slope as -2, since the y-values in the table are decreasing by 2 in each row. This may indicate that students assume the change in x is 1, if their experiences have only included tables that show the x-values increasing by 1. These students would benefit from graphing the points from the table on a coordinate grid and using slope-triangles to find the ratio of the vertical change to the horizontal change. Providing opportunities for students to determine slope from a variety of tables, including those where the change in x-values is not 1 as well as those where the change in x-values is not consistent throughout the table would also benefit students.*